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THE EXHIBITION OF MOLLUSCA IN A MUSEUM

BY CHARLES W. JOHNSON

A museum should make its molluscan exhibit as attractive and educational as possible. A purely systematic collection with few shells and long printed labels, with the nomenclature changing daily, will do little to create an interest in the Mollusca. Shells are only equivalent to the skeletons of vertebrates, and convey little or no idea to the public of how they grow or of the animals that constructed them. They would probably appeal to many visitors as a great hall of skeletons in a museum in Paris, did to a friend, who sent me a picture of the hall on which he had written "Some valley of dry bones."

How can we show in a clear and attractive way the creatures that build the shells? The best preserved specimens in alcohol or formaline usually look more dead than their shells. Undoubtedly the most attractive way to show Mollusca, both those with and without shells, is by glass models such as the Blaschkas used to make before they devoted all their time to making glass flowers for the Harvard museum. Glass models are not now obtainable and few museums can afford skilled artisans such as the American Museum of Natural History employs to make their beautiful and instructive groups of marine invertebrates. The Boston Society of Natural History is quite fortunate in having over 200 Blaschka glass models of mollusca,

but most of these represent foreign species and are available only for the synoptic collection.

Next to the glass models the best way to show the Mollusca of a local or given area, and a way available to all museums, is by the use of colored drawings from life, made by a skilful and careful artist. People are accustomed to looking at pictures and are not so apt to be misled by an enlarged drawing as by an enlarged model. Also with enlarged drawings the details of very small species can be worked out with greater accuracy than in the models. To add to the attractiveness of the New England collection and make it more instructive, the Boston Society of Natural History is placing with its exhibition of shells, beautiful colored drawings of the animals, made by the well-known scientific artist Mr. J. Henry Blake. More than 100 drawings are now in the collection, also some 30 Blaschka models and numerous maps to show the distribution of the more interesting species.

Among other interesting objects at the seashore are the egg-capsules of the various gasteropods which should always accompany the species. The egg-capsules of *Buccinum undatum* and *Chrysodomus decemcostatus* were figured in THE NAUTILUS, Vol. 31, pl. 1. Mr. Owen Bryant some years ago gave the Society a tube containing 1700 embryonic shells taken from one string of capsules of *Busycon carica*, but the number of capsules was not mentioned. One cannot always find a string of capsules in which the embryonic shells are well developed and the small holes through which they escape are all closed. A part of a string, containing 18 capsules intact, was found in the collection, these containing from 11 to 27 shells each, an average of about 20. Complete strings contain between 80 and 90 capsules, not counting the smaller ones that serve as an anchor for the string.

The sand-collars are conspicuous objects of a sandy beach, but it is surprising how few really know that these are the nidus or nest of the sea snail. The nidus of the Northern Sand-collar Snail (*Polinices heros*) has a plain edge, while the Southern Sand-collar Snail (*P. duplicata*) has the edge wavy. The little collar of *P. triseriata* is not often found as the snail frequents

deeper waters. Although sand-collars are common in the shoal waters in June, they are comparatively scarce in August, when they contain the embryonic shells. Mr. A. B. Fuller obtained one of *P. heros* on the Georges Bank in 45 fathoms, with the young shells ready to leave the collar.

To show variation and some of the conditions that govern the various forms, sculpture and color of shells, is another interesting feature. The species of Slipper shells (*Crepidula*) are admirable for showing variation and mutation due to their habit of growing on objects of various form and color. *C. glauca* becomes the variety *convexa* when living on a very convex surface. When found on *Alectrion* (*Ilyanassa*) *obsoleta* they are a uniform dark brown, but on *A.* (*Tritia*) *trivittata* they are light colored with brown spots. *C. fornicata* is usually darker when growing on a horse-shoe crab than when growing on a large Busycon. When attached to scallops (*Pecten irradians*) they adopt its ribbed sculpture. The forms assumed by *C. plana* are marvelous. *Crucibulum striatum* growing on the almost smooth *Pecten grandis* have the sculpture obsolete or wanting. The jingle shells (*Anomia simplex*) also shows wonderful adaptation to its surroundings; very convex and often with a free edge when attached to pebbles, they are ribbed on *Pecten irradians* and sometimes so crowded on an oyster shell that they become angular. The little *A. aculeata* often lacks its scaly sculpture when growing on a smooth surface.

The rock or dog whelk (*Thais lapillus*) shows a wide range in size and color. Form is usually considered to be the result of environment, but color is largely hereditary. Shells from an exposed situation are smaller than those from more sheltered places, while the variety *imbricata* usually frequents muddy situations. On rocks covered with white barnacles (*Balanus balanoides*) or where the rocks are light-colored, the shells of the whelks are white, while on mussel and algae covered rocks the shells vary in color from blackish brown to light brown, orange and yellow, with but a small percentage white. An interesting paper on "Variation in the Dog Whelk," by Harold Sellers Colton, appeared in "Ecology," Vol. 3, pp. 146–157, Apr., 1922. *Littorina rudis* is another shell that shows remark-

able variation. Although many forms are recorded in Europe, only *tenebrosa* has been recognized here. Environment seems to be the governing factor, *tenebrosa* usually frequenting the marshes and the other forms the rocks, often far above the high water mark. They vary in color to a great extent according to the color of the rocks they frequent. At Bass Rocks, Gloucester, Mass., in algae at about half tide is a colony scarlet in color.

Where conditions are as diversified as in New England maps showing the distribution of certain species will be found very useful and instructive.

ISOLATION AND CURACAO

BY H. BURRINGTON BAKER

Those of us who were initiated into the mysteries and delights of conchology through our interest in a local fauna of eastern or central United States, or of any continental land mass where the barriers are few and far between, find it difficult, at first, to realize the necessity for exact localities. Although we may find a certain species in a woodlot but absent from the adjacent cedar swamp, we soon recognize that this restriction is purely edaphic and ecological. Under similar conditions, the same forms usually turn up over and over again, even if we travel miles away from the region of our first acquaintance with our sluggish and secretive favorites. Once in a long time, we may come across such exceedingly exclusive eremites as *Hendersonia occulta* (Helicinidae), which, for example, occurs abundantly in the deep limestone gorge at the base of the Virginian Natural Bridge, but is quite absent from the rich forests of the surrounding hills, just as it is from most parts of its remarkably discontinuous range. However, such cases are exceptional, and usually the notation of exact localities does seem almost a waste of time and space.

As a result, we are apt to be totally unprepared for the amazing segregation that occurs in regions where the barriers are numerous and relatively impassable. Even if we have followed